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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,282	03/25/2005	Keiichiro Aoki	123318	2001
25944	7590	06/02/2006	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			KHUU, HIEN DIEU THI	
			ART UNIT	PAPER NUMBER
			2863	

DATE MAILED: 06/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/529,282	Applicant(s) AOKI, KEIICHIRO	
	Examiner Cindy D. Khuu	Art Unit 2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 11 is/are rejected.
- 7) ☒ Claim(s) 2-10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/25/05 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/25/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification Objections

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it exceeds 150 words in length. Correction is required. See MPEP § 608.01(b).

Drawings Objection

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "impedance detection device", "impedance judgment device", "received heat amount estimation device", "heat amount judgment device", and "activity judgment device" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Claim Objections

Claims 1 and 11 are objected to because of the following informality: It appears that the "impedance detection device", "impedance judgment device", "received heat amount estimation device", "heat amount judgment device", and "activity judgment device" are all process steps of the microcomputer (34). Correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Hattori (US 2004/0099528).

With respect to claims 1 and 11, Hattori discloses an exhaust gas sensor control device for an exhaust gas sensor that is mounted in an exhaust path of an internal combustion engine (Fig. 1; Paragraph 30), wherein said exhaust gas sensor (10) includes a sensor element (12) that becomes active when an activity temperature is reached (Paragraph 43-44), the exhaust gas sensor control device (Fig. 1) comprising: an impedance detection device (24) for detecting an element impedance of said sensor element (Paragraph 34); an impedance judgment device (20) for judging whether said element impedance is lowered to an activity judgment value (Fig. 3, Paragraphs 45 and 75); a received heat amount estimation device (28) for estimating the amount of heat received by said sensor element (Paragraph 60); a heat amount judgment device (20) for judging whether an activity judgment heat amount is reached by said

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amount of heat received (Fig. 3, Paragraphs 45 and 75); and an activity judgment device (30) for formulating an activity judgment of said exhaust gas sensor when an affirmative judgment is executed either by said impedance judgment device or by said heat amount judgment device (Paragraph 42).

Allowable Subject Matter

Claims 2-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record, taken alone or in combination, fails to disclose or render obvious, which makes the following claims allowable over the prior art:

With respect to claim 2, the exhaust gas sensor control device wherein said exhaust gas sensor includes a heater for heating the sensor element; said exhaust gas sensor control device further comprising a heater drive device for driving said heater in an environment where the activation of said exhaust gas sensor is demanded; wherein said heat amount judgment device determines whether an activity judgment heat amount is reached by the amount of heat received by said sensor element based on the result of whether an activity judgment time is reached by a period of time during which the heater is powered after the activation of said exhaust gas sensor is demanded.

With respect to claim 3, the exhaust gas sensor control device wherein said exhaust gas sensor includes a heater for heating the sensor element; said exhaust gas sensor control device further comprises a heater drive device for driving said heater in an environment where the activity of said exhaust gas sensor is demanded; wherein said heat amount judgment device determines whether an activity judgment heat amount is reached by the amount of heat received by said sensor element based on the result of whether an activity judgment power supply amount cumulative value is reached by the cumulative amount of power that has been supplied to the heater after the activity of said exhaust gas sensor is demanded.

With respect to claim 4, the exhaust gas sensor control device wherein said heat amount judgment device determines whether an activity judgment heat amount is reached by the amount of heat received by said sensor element based on the result of whether an activity judgment air amount is reached by the cumulative amount of air that has been taken in after internal combustion engine startup.

With respect to claim 5, the exhaust gas sensor control device wherein said heat amount judgment device determines whether an activity judgment heat amount is reached by the amount of heat received by said sensor element based on the result of whether an activity judgment fuel amount is reached by the cumulative amount of fuel that has been supplied to an internal combustion engine after internal combustion engine startup.

With respect to claim 6, the exhaust gas sensor control device further comprising: a startup water temperature detection device for detecting a startup cooling water temperature of an internal combustion engine, wherein said heat amount judgment device includes an activity judgment heat amount setup device for increasing said activity judgment heat amount with a decrease in said startup cooling water temperature.

With respect to claim 7, the exhaust gas sensor control device wherein said exhaust gas sensor includes a heater for heating the sensor element, said exhaust gas sensor control device further comprising a heater drive device for driving said heater in an environment where the activity of said exhaust gas sensor is demanded; and a battery voltage detection device for detecting a battery voltage; wherein said received heat amount estimation device includes a warm-up period correlation value calculation device for detecting a warm-up period correlation value that correlates with a warm-up period for said sensor element; and wherein said heat amount judgment device includes a device for judging, when a sensor activity judgment correlation value is reached by said warm-up period correlation value, that said activity judgment heat amount is reached by said amount of heat received, and a judgment value setup device for increasing said sensor activity judgment correlation value with a decrease in a battery voltage prevailing during a warm-up process for said sensor element.

With respect to claim 8, the exhaust gas sensor control device wherein said exhaust gas sensor includes a heater for heating said sensor element, said exhaust gas sensor control device further comprising; a heater drive device for driving said heater in an environment where the activity of said exhaust gas sensor is demanded, said heater drive device including a feedback control device for exercising feedback control over said heater so that said element impedance coincides with target impedance; a deterioration judgment device for judging the deterioration of the sensor element when said element impedance is judged to be excessive for the amount of heat received by said sensor element; and a target impedance correction device for increasing the target impedance for correction purposes when said sensor element is judged to have deteriorated.

With respect to claim 9, the exhaust gas sensor control device wherein said exhaust gas sensor includes a heater for heating said sensor element, said exhaust gas sensor control device further comprising; a heater drive device for driving said heater in an environment where the activity of said exhaust gas sensor is demanded, said heater drive device including a feedback control device for exercising feedback control over said heater so that said element impedance coincides with target impedance; a deterioration judgment device for judging the deterioration of the sensor element when said element impedance is judged to be excessive for the amount of heat received by said sensor element; and an activity judgment value correction device for increasing said activity judgment value for correction purposes when said sensor element is judged to have deteriorated.

With respect to claim 10, the exhaust gas sensor control device wherein the condition to be judged by said impedance judgment device and the condition to be judged by said received heat amount estimation device are predefined so that the former condition is satisfied prior to the latter condition when said sensor element exhibits an initial impedance; and wherein said deterioration judgment device judges that said element impedance is excessive for said amount of heat received when the latter condition is satisfied prior to the former condition.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Ohkuma et al. (US 2001/0054608).

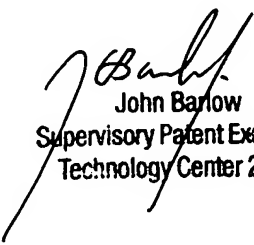
Fax/Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cindy D. Khoo whose telephone number is (571) 272-8585. The examiner can normally be reached on M-F, 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CDR 5/16/06


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